brutal, alienating experience, one from which I barely recovered. The curriculum was devoted to the usual preclinical subjects. The lectures were packed with facts; the tests were fair. I doubt that any fault truly lay with what was being offered. It was my intellectual transition that was most problematic. I had become a person dedicated to "high science," the big ideas, major principles, and overarching concepts. My difficulty began with the first exam in the first subject, physiologic chemistry. I had prepared systematically and seriously. I knew, to cite just one painful example, what I considered to be the salient facts about amino acids — what they were, how they were constructed, and how they were linked together to create proteins. Seated for the exam, however, one of the early questions knocked me off my stride. Showing the structure of a protein, they asked: "What is the pKa of this molecule and which way would it migrate in an electrophoretic field?" I remember my answer dimly. I wrote an essay along these lines: "This molecule is made up of amino acids. The amino acids differ in their pKas. If I had memorized the individual pKas of each amino acid, I could arithmetically derive the pKa of the overall molecule and therefore predict the direction in which it would migrate in an electrophoretic field." It was the best I could do under the circumstances, but I got no credit at all. Score zero. The rest of the exam went on in a similar vein and in the end, I got to see the Dean.

The Dean, you see, met with outstanding students. I saw him more than once that year and always for the same reason. I was an outstanding but low-end member of my class. This experience had some important and useful aspects. I came to know that Deans were sympathetic, concerned persons who really did have the progress of at least some of the individual students in mind from time to time, whatever the other, larger issues of the deanery might be. He and I devised a strategy to rescue my own progress in medical school by returning to what many view as the origins of modern medicine, the pathology laboratory.

The idea was actually mine and was very pragmatic. I needed a second chance to learn some of the content from the preclinical curriculum, and the easiest way I could recapitulate anatomy was to do autopsies. Furthermore, I thought I could begin to synthesize whatever information I was going to be able to retain from the other basic sciences around cases I

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† President, Society of General Internal Medicine.

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Address correspondence and reprint requests to Dr. Inui: General Internal Medicine, Harborview Medical Center ZA-60, 325 9th Avenue, Seattle WA 98104.
could see and examine in detail. For that reason, at about this season of the year I entered a student externship in pathology which lasted through Spring and Summer quarters. During that time, I personally performed and closed out all examinations on 17 persons who had died. I saw and thought about a much larger number of cases than that. All in all, it was a small contribution to the then 33,000 completed autopsy cases at the Johns Hopkins Hospital, starting with those that Osler did himself in the late 1800s. It was through this experience that I finally and intimately understood what they were talking about in medical school, the notion of "disease."

My tutor in this matter was a tall Germanic pathologist named Dr. Sheldon. He remains an important figure to me for several reasons. He and the diener taught me how to do an autopsy in the classic en bloc method, requiring the removal of the entire organ block from the thoracic and abdominal cavities in one piece, permitting examination of the relationships "in continuity," as he used to say in what I recall as a severe Germanic accent. He also taught me how to identify the most important questions that clinicians posed about the diseases of their patients, so that the work we did would have maximal heuristic value. In this latter context, it was really he who taught me how to conduct an investigation of disease, identifying a key feature of a case, outlining the alternative hypotheses which could and should prevail at the outset, exploring these systematically as one gathers evidence from the look and feel of the tissues, from the microbiology or chemistry laboratory, from the reports of clinicians, from families and others outside medicine such as the police and neighbors, and so on.

Professor Sheldon was also a master at talking about the inquiry he was conducting as he went. You remember the setting or would know one when you saw it. A bright white room with stainless steel tables, a person in a white or green scrub suit, the pathologist, leaning over a table, working in the body or on the organs once removed. A pedal under the table you could press with your foot and a microphone hanging from the ceiling. "When we entered the abdominal cavity [click], the peritoneal surfaces were covered with a thin layer of gray fibrinous exudate [click]. 350 cc of a serosanguineous fluid could be recovered from the pelvic recesses and were submitted for culture [click]." He spoke as he went along about what he was finding, entering his observations into the record. He told me, as he went, what he was doing and why he was doing it. He simultaneously acted, reflected upon his actions, and instructed me. In the framing and reframing of his hypotheses he would create new syntheses and explore them in turn. It was modern medicine in action, and the disease hypotheses could be pursued to the limits of our science. After the gross examination came the chemistries, cultures, and toxicology. Then the examination of the histology of hundreds of slides, then special stains, immunofluorescopy, and so on. In the end, at the case "check out" session he always acknowledged the limits of what we could know, was never loath to raise final questions for which I could generate no answers at all, and helped me write an essay ending with questions about each case no matter how clearly delineated the diseases had been. This was an essay speaking to the limits of our knowledge and the depth of our uncertainty. It was, he said, important to the science of medicine.

My worst moment with Professor Sheldon came early in my elective. I was doing a "post," hoping to remove the organ block successfully. You pulled them up against your chest, reflecting them off the spinal column, hoping to remove them without tearing them or disturbing the relationships. The block is mobilized from the head down, after you've cut through the major arch arteries, trachea, and esophagus. I was doing well when I felt him approach and look over my shoulder with interest, saying nothing. I kept working. Getting down to the distal esophagus, it ruptured, spilling foul contents of the stomach. I froze, holding the organs tighter. He said with his own accent: "Do you know, Dr. Inui, what the main difference between you and me is?" Sweating a bit, feeling the irony of the Dr. Inui, whether he intended it or not, I said, weakly, "No." "It is," he said, "that I have made more mistakes than you." He left. I went on.

I think of my pathology experience now in a number of different ways. In the first place, it was clearly a lesson in teaching. I have read a great deal since then about the principles and practice of adult education, in an attempt to achieve greater understanding of what I do or should do as a clinical teacher. I have also tried to be attentive to the styles, characteristics, and strategies of persons I consider to be unusually successful teachers. The metaphor for clinical teaching that has helped me the most is best expressed in Donald Schon's book, Educating the Reflective Practitioner. This book is actually about students and teachers of architecture and music, but contains some examples drawn from medicine. Schon attempts to describe a successful model for educating those persons who will be involved in the performing professions, professions in which creative acts are critical to the successful completion of the principal tasks.

Teachers in these professions are responsible, Schon writes, for coaching persons who must perform successfully, not for teaching in an ordinary didactic sense. Like gymnastics coaches, we watch medical students hurtle down runways toward vaults as they present medical histories and tell us about the findings of physical examinations. Like